Monitoring Ocean Surface Wind Vector from Space.

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Spaceborne scatterometer is the only proven mean to measure ocean surface wind vector,
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In the past decade, four scatterometers have been launched. Studies to remove systematic errors from these data sets will be reviewed. Trends and variations in these data set will be compared with major climate indexes.

Historically, scatterometers of the European Space Agency (ESA) used C-band (5 GHz), but the National Aeronautics and Space Administration (NASA) prefers Ku-band (14 GHz). Ku-band is more sensitive to wind variation at low winds but is more subjective to rain contamination. The European Remote Satellite (ERS)-1 and -2 provided nine years of continuous wind data starting 1991, covering 40% of the global ocean daily. The backscatters measured have 50-km spatial resolution but are sampled at 25 km. The NASA Scatterometer (NSCAT) covered 77% of global ocean at 25-km resolution daily. The unexpected destruction of the solar array caused the early demise of NSCAT in June 1997, after returning 9 months of data. NASA launched QuikSCAT, with new design, in 1999. It covers 93% of the global ocean in a single day. The standard wind product has 25-km spatial resolution, but special products with 12.5-km resolution for selected regions have been produced. In one decade, daily wind vector coverage increases from 41%, to 77%, then to 93%, and spatial resolution improves from 50km, to 25 km, and to 12.5 km